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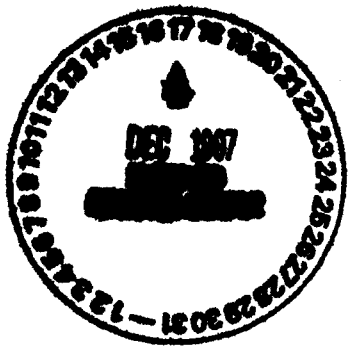
RF/RMRS-97-125.UN

Concrete Sampling and Analysis Plan to Characterize the Building 123 Slab

Rocky Flats Environmental Technology Site

Prepared by

Rocky Mountain Remediation Services, L. L. C.



December 1997

CONCRETE SAMPLING AND ANALYSIS PLAN TO CHARACTERIZE THE BUILDING 123 SLAB

DECEMBER 1997

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ACRONYMS

AHA ..... Activity Hazard Analysis
ANSI ..... American National Standards Institute
APO ..... Analytical Projects Office
Ba ..... barium
COCs ..... contaminants of concern
Cf ..... californium
CDPHE .... Colorado Department of Public Health and the Environment
DQO ..... Data Quality Objective
DOE ..... U.S. Department of Energy
dpm ..... disintegrations per minute
EPA ..... U.S. Environmental Protection Agency
GPR ..... Ground-Penetrating Radar
Gd ..... gadolinium
H-3 ..... tritium
HASP ..... Health and Safety Plan
HTO ..... tritium oxide
LLW ..... low-level waste
MDA ..... minimum detectable activity
Ni ..... nickel
NIST ..... National Institute of Standards and Technology
OPWL ..... Original Process Waste Line
PAM ..... Proposed Action Memorandum
Pb ..... lead
PPE ..... personal protective equipment
PRE ..... Property Release Evaluation
QA/QC .... Quality Assurance/Quality Control
QAPD ..... Quality Assurance Program Description
RCRA ..... Resource Conservation and Recovery Act
RCT ..... Radiological Control Technician
RFCA ..... Rocky Flats Cleanup Agreement
RFETS ..... Rocky Flats Environmental Technology Site
RMMA ..... Radioactive Materials Management Area
RMRS ..... Rocky Mountain Remediation Services
RWP ..... Radiological Work Permit
SAA ..... Satellite Accumulation Area
SOPs ..... Standard Operating Procedures
SAP ..... Sampling and Analysis Plan
Sr ..... strontium
TLD ..... thermoluminescent dosimeter
UCL ..... Upper Confidence Limit

LIST OF APPLICABLE STANDARD OPERATING PROCEDURES (SOPs)

Identification Number	Procedure Title
4-ROI-03.02	*Radiological Requirements for Unrestricted Release*
1-P21-HSP-18.04	*Control of Radioactive Sources*
4-U50-REP-1006	*Radiological Characterization of Bulk or Volume Materials*
4-Q97-REP-1003	*Radiological Evaluation for Unrestricted Release of Property/Waste*
1-P73-HSP-18.10	*Radioactive Material Transfer and Unrestricted Release of Property and Waste*
5-21000-OPS-FO.03	*General Equipment Decontamination, Section 5.3.1, Cleaning Steel or Metal Sampling Equipment Without Steam in the Field*
OPS-DIR-006	*Safety Requirements for Work Involving Penetration of Walls, Floors Ceilings, and Concrete, Asphalt, or Masonry Pads*
2-S47-ER-ADM-05.15	*Use of Field Logbooks and Forms*
RM-06.04	*Administrative Record Document Identification and Control*
5-21000-OPS-FO.10	*Receiving, Labeling, and Handling Environmental Containers*
5-21000-OPS-FO.13	*Containerization, Preserving, Handling, and Shipping of Soil and Water Samples, Volume 1*

CONCRETE SAMPLING AND ANALYSIS PLAN TO CHARACTERIZE THE BUILDING 123 SLAB

1.0 INTRODUCTION

1.1 Purpose

The purpose of this document is to provide a Sampling and Analysis (SAP) for the radiological characterization of the Building 123 concrete slab, pursuant to the *Proposed Action Memorandum (PAM) for the Decommissioning of Building 123* (RMRS 1997a).

The objective of the SAP is to define specific data needs, sampling and analysis requirements, data handling procedures, and associated project QA/QC requirements to demonstrate that residual radioactive materials existing in the Building 123 slab are below levels appropriate for unrestricted release with respect to 4-U50-REP-1006 *Radiological Characterization of Bulk or Volume Materials.* If necessary, areas will be decontaminated, managed as radioactive material, or released in a restricted manner. The SAP defines activities that will occur in conjunction with efforts outlined in the *Close-out Radiological Survey Plan for the Building 123 Cluster* (RMRS, 1997b). All work will be performed in accordance with the *RMRS Quality Assurance Program Description(QAPD)*(RMRS 1997c).

1.2 Background

1.2.1 Physical Description

Building 123 is located on Central Avenue between Third and Fourth Streets at the Rocky Flats Environmental Technology Site (RFETS, Figure 1.1). Building 123 was erected in 1953 with additions completed in 1968, 1972 and 1989. The 75-room facility covers approximately 19,000 square feet and is constructed of mostly concrete with an asphalt roof. The floor slab is composed of poured-in-place, reinforced concrete, six to eight inches thick, with a barrier on a gravel base (RMRS 1997d).

1.2.1.1 Source Pits

Cylindrical, concrete lined pits were installed during the original construction for the storage of radioactive sources for dosimetry. Three different types of pits were constructed as described below and indicated in Figure 1.2:

1. Type A: approximately 18' deep x 19" diameter
2. Type B: 16" deep x 12" diameter
3. Type D: 8" deep x 6" diameter

1.2.1.2 Floor Drains

Floor drains were installed to divert liquid process waste through OPWL P-2 to Building 374 for treatment (Figure 1.2).

1.2.1.3 Secondary Containment Sumps/Access Pits

Interconnected, secondary containment sumps/access pits for the process waste lines were

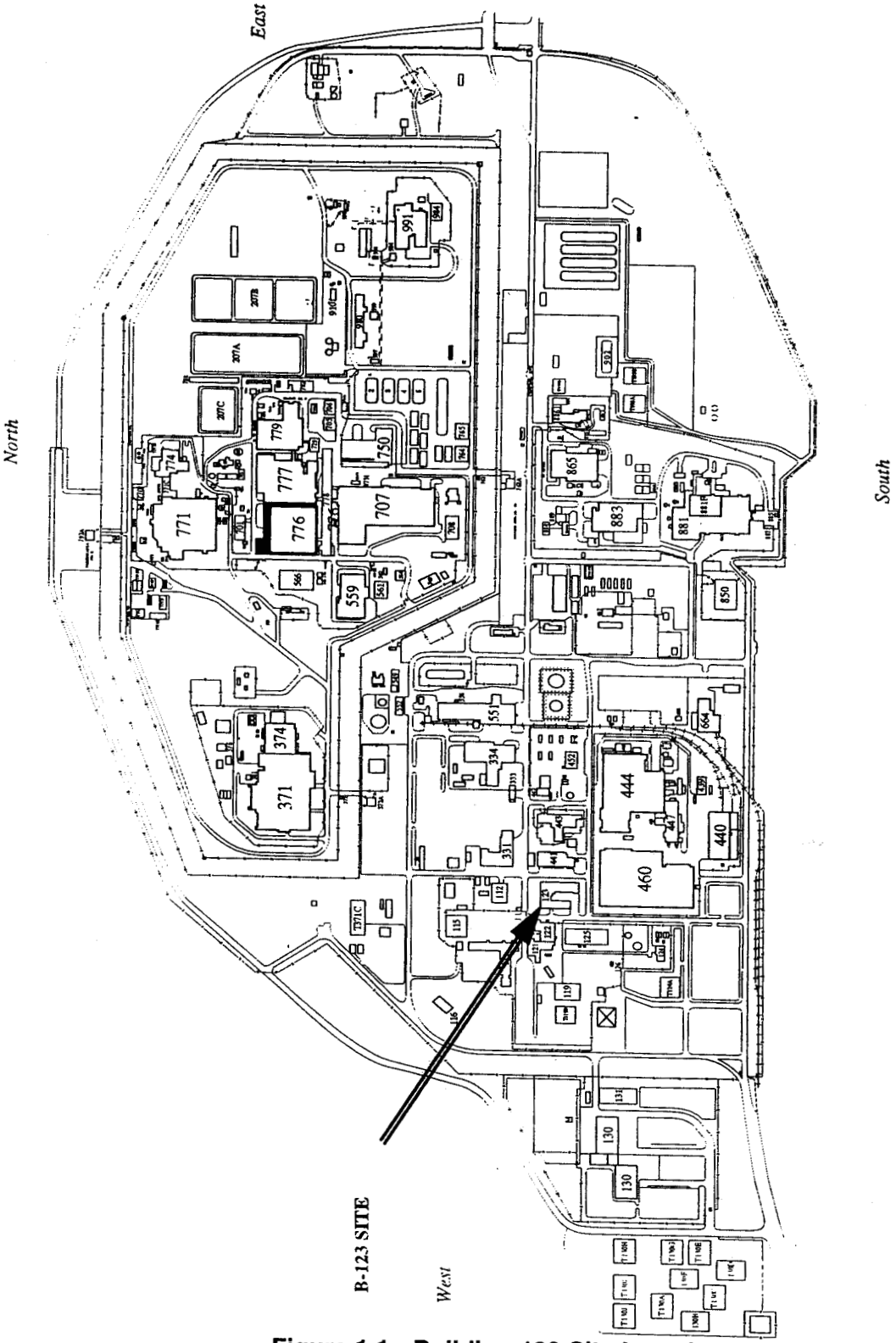

Figure 1.1 Building 123 Site Location

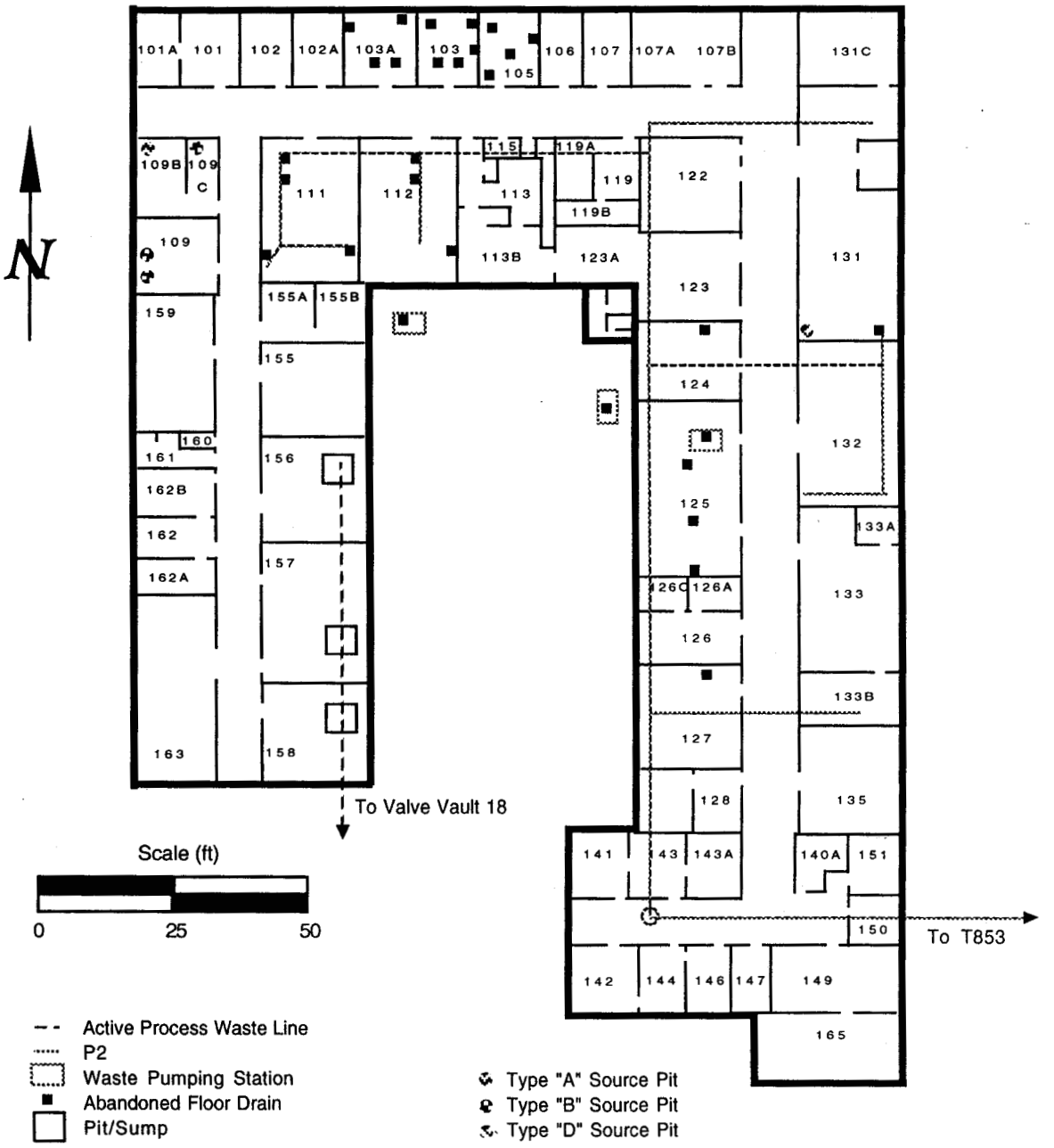

Figure 1.2 Locations of Abandoned Floor Drains and Pits in Building 123

installed in Rooms 156,157, and 158 during the 1972 west wing addition (see Figure 1.2).

Dimensions of the sumps are described below:

1. Room 156: 4' x 4' x 4'-2" deep
2. Room 157: 4' x 6' x 5' deep
3. Room 158: 4' x 4' x 5'-3" deep

Process waste exits the building from the sump in Room 158 through underground pipe P-1 to Valve Vault 18. The floor of all three sumps is 4" thick and the walls are 8" reinforced concrete. The sumps were coated with epoxy paint in approximately 1992.

1.2.1.4 Process Waste Pump Sumps

Three concrete sumps were installed in 1974 to house process waste pumps as part of the overhead process waste system. Two sumps were installed in the Building 123 courtyard and one sumps was installed in Room 124. Dimensions of the sumps are described below:

1. Waste Pumping Station P-5 (outside Room 125): approximately 4' x 3' x 2' deep
2. Waste Pumping Station P-6 (outside Room 112): approximately 4' x 3' x 2' deep
3. Waste Pumping Station P-1 (Room 124): 1'-11" x 1'-8" x 11" deep.

The floor of the sumps is 6" thick and the walls are 4" reinforced concrete. Each of the sumps are overlain by a quarter-inch-thick steel cover.

1.2.2 Building Operating History

Analytical laboratory, dosimetry and instrument calibration activities have been conducted in Building 123 since construction in 1953. Building 123 once housed medical research, generating approximately 95 percent of the building waste, until such operations were relocated to Building 122. The remaining five percent was generated through repair and calibration of radiation detection instruments and process of thermoluminescent dosimeters (TLDs) and film badges.

Analytical laboratory procedures involved the digestion of samples to purify and concentrate the radiological constituents. Sample preparation operations generated the bulk of the building waste. Combustibles, rubber gloves, and broken glass generated in the Radioactive Materials Management Areas (RMMAs) were placed in Satellite Accumulation Areas (SAAs) for eventual handling as low level waste (LLW). Various sample waste and rinse solutions were washed down the process drain for subsequent treatment in Building 774 (Building 374 after 1983). Various isotopes of plutonium (Pu), americium (Am), uranium (U), and curium (Cm) were handled in Building 123.

1.2.2.1 Source Pits

Source pits were used to store radioactive sources for dosimetry activities. Prior to 1966 a spill of cesium-contaminated liquid occurred in the vicinity of one of the Type A pits in Room 109C. The pits were abandoned and filled with concrete in approximately 1970, just prior to construction of the west wing. No further action was initiated to address consequences of the spill.

1.2.2.2 Floor Drains

Floor drains concentrated in the north central area of Building 123 (Figure 1.2) directed liquid process wastes to the process waste system. Most of the drains fed to process waste pumps

which pumped the wastes into the overhead process waste lines and eventually to underground line P-2. Other drains fed directly to P-2. When P-2 was properly abandoned in 1982, the floor drains were filled to the slab surface with concrete.

1.2.2.3 Secondary Containment Sumps/Access Pits

The secondary containment sumps/access pits in Rooms 156, 157, and 158 served as the final junction of process wastes before the wastes exit the building through underground line P-1. The pits are currently active and will be utilized until RCRA closure of the overhead process waste lines and active underground line P-1 has been completed.

1.2.1.4 Process Waste Pump Sumps

Sumps were installed to house process waste pumps which directed liquid process waste to line P-2. The pumps were decommissioned in 1974 and removed from the sumps, which are currently empty.

2.0 CONTAMINANTS OF CONCERN (COCs)

During the past forty-four years, building operations (primarily analytical laboratory operations) may have contributed, in varying degrees, to the deposition of radioactive contamination within the building. The presence of radioactive contamination above the unrestricted release criteria defined in 4-ROI-03.02, *Radiological Requirements for Unrestricted Release* was confirmed in Rooms 105, 106, 109 and 123A (Table 2.0) during reconnaissance-level characterization surveys

Table 2.0 Summary of Radiological Survey Results above Unrestricted Release Limits *(in dpm/100 cm^2)*[a]

	Removable		Total	
Room Number	Alpha	Beta	Alpha	Beta/Gamma
105 Spike and Electroplating Prep.	<18	<205	<60	124,200
106 Office	<18	<205	<60	1,101
109 Office	<18	<205	<60	9,072
123A Hall to Exit Lockers	<18	<205	<60	7,920

[a] The Unrestricted Release Limit for beta/gamma emitters is 1000 dpm/cm^2 (removable).

of the building. The potential for undetected residual radioactivity in excess of the release criteria varies throughout the building. Interviews with site employees indicated that a cesium spill occurred in Room 109, and undocumented thorium research was performed in Room 105. Scoping surveys conducted in May through July 1997 revealed elevated levels of radioactivity in both areas. The isotopic composition of the detected radioactivity was confirmed in a series of in-situ gamma spectroscopic measurements performed in August 1997. Based on the history of the building, most of the contamination was determined to be Thorium-232. Locations in Room 109 were determined to contain Cesium-137.

The following contaminants have been identified for Building 123:

- Pu-242, Pu-239, U-232, U-234, U-238, Am-241 and Cm-244; radioactive tracers used during bioassay analysis.
- Cs-137, spill, Room 109, confirmed via in-situ gamma spectroscopy.
- Th-232 and associated decay products, research and development Room 105, confirmed via in-situ gamma spectroscopy.

The following isotopes mentioned in the Reconnaissance Level Characterization Report for Building 123 have been ruled out as potential contaminants of concern:

- H-3, in the form of HTO in concentrations up to 1000 dpm/ml used as a standard for liquid scintillation analysis. A review of the *Historical Release Report for the Rocky Flats Plant*, (DOE 1992) and interviews with past building occupants failed to identify spills or releases involving tritium. If an undocumented spill had occurred, it is highly unlikely that residual tritium contamination would exceed the release criteria because the process of evaporation and relatively short half-life would limit the resulting contamination levels.
- H-3, in gaseous form is not expected to result in surface contamination.
- Ni-63, Sr-90, Ba-133, Gd-148 , Pb-210 and Cf-250 in the form of electroplated and sealed check sources. The integrity of electroplated and sealed sources are verified semi-annually in accordance with HSP 1-P21-HSP-18.04 *Control of Radioactive Sources* and are not expected to result in radioactivity contamination of the building.

3.0 DATA QUALITY OBJECTIVES

EPA has established a process to direct Superfund decision-making as the basis for developing DQOs. DQOs are designed to ensure that the type, quantity, and quality of environmental data used in decision making are appropriate for the intended application. The data must also facilitate appropriate remedial measures for mitigating risk. Data requirements to support this project were developed and are implemented in the project using criteria established in *Guidance for the Data Quality Objective Process*, QA/G-4 (EPA 1994).

The DQO process contains seven sequential steps which are rationalized below.

1. State the Problem

The problem is the uncertainty of the presence or absence of radioactive constituents in Building 123 concrete slab. The purpose of the SAP is to collect field data to identify and delineate the extent of any radioactive contamination to support unrestricted release of the building slab. Primary COCs are defined in Section 2.0.

2. Identify the Decision

The decision is to characterize the building slab and determine if all, none, or parts of the slab meet unrestricted release criteria defined in Step 3. All materials that do not meet the unrestricted release criteria, including concrete and associated rebar, conduit, and piping materials will be managed as radioactive waste.

3. Identify the Inputs to the Decision

The following information will be required to resolve the decision:

- Historical Information, including COCs defined in Section 2.0.
- Media Sampling (as outlined in Section 4.0)
- A radiological survey as defined in the *Close-out Radiological Survey Plan for the Building 123 Cluster* (RMRS, 1997b)

The sample frequency required to allow an unrestricted release relies heavily upon a judgmental sampling strategy, determined with respect to hand-held radiological survey results and process knowledge (see Section 4.1). Currently, no regulatory guidelines define release criteria for concrete material. Thus, direction will be derived from 4-U50-REP-1006 *Radiological Characterization of Bulk or Volume Materials*, which requires collection and analysis of one or more samples to represent background levels for a particular matrix and environment. A comparison is made of the background sample results with those of the remaining samples. Radiological Engineering personnel then evaluate the materials for disposal. If the remaining samples indicate no measurable increase in COCs, then the material may be released for unrestricted use under DOE Order 5400.5, *Radiation Protection of the Public and the Environment*. All statistical testing used to show that the waste is indistinguishable from background will be calculated based on sample results. Background sample location and frequency are discussed in Section 4.1.

COCs, analysis method names and method detection limits defined by the contract laboratory are indicated in Table 3.0.

Table 3.0 Analysis Methods, Method Detection Limits for Contaminants of Concern at Building 123.

Analyte	Method Name	Method Number	Method Detection Limit
U233	Isotopics by Alpha Spectroscopy	Module RC01-B	1.0 pCi/g
U234	Isotopics by Alpha Spectroscopy	Module RC01-B	1.0 pCi/g
U235	Isotopics by Alpha Spectroscopy	Module RC01-B	1.0 pCi/g
U238	Isotopics by Alpha Spectroscopy	Module RC01-B	1.0 pCi/g
Pu239	Isotopics by Alpha Spectroscopy	Module RC01-B	0.3 pCi/g
Pu240	Isotopics by Alpha Spectroscopy	Module RC01-B	0.3 pCi/g
Th228, Th230, Cs137	Isotopics by Gamma Spectroscopy	[a]	1.0 pCi/g

[a] To date, no method number has been designated for gamma spectroscopy.

4. Define the Study Boundaries

The methodology contained in this document applies only to the Building 123 slab. Coring activities will occur only after normal working hours (after 1730) as not to impede asbestos strip-out and other decommissioning activities. The work is to be completed before demolition of Building 123.

5. Develop a Decision Rule

Data collected during this project will be evaluated by Radiological Engineering in accordance with 4-U50-REP-1006 *Radiological Characterization of Bulk or Volume Materials.* Exceedances of recommended allowable release limits will be evaluated for possible removal of parts or all of the slab.

6. Specify Tolerable Limits on Decision Errors

Sample locations were assigned according to areas defined in Section 4.1 to provide a thorough radiological characterization. In addition, error rates for data collected during this study are incorporated into the detection limits for the analysis parameters. Acceptable levels of decision errors will be used as the basis for establishing the quantity and quality of data needed to support the proper disposition of the Building 123 slab. Upper Confidence Limits (UCLs) will be calculated based on sample results.

7. Optimize the Design

During coring activities, an attempt will be made to ensure that actual sampling locations will closely correspond to the locations indicated in Figure 4.1. In the unlikely event that material other than concrete is encountered during coring activities, the sample location will be moved to a point within a six-inch radius of the original location, and the waste material will be disposed as specified in Section 8.2.

Data will be analyzed and evaluated by Radiological Engineering with respect to 4-U50-REP-1006 *Radiological Characterization of Bulk or Volume Materials.* Evaluation of sample analyses may warrant a source removal action or collection of additional samples. If required, the data will also be the basis for corrective measure design.

4.0 SAMPLING ACTIVITIES

4.1 Sample Location and Frequency

The sampling event will focus on the Building 123 concrete slab. Any locations outside of the building (i.e., waste pumping station sumps in the Building 123 courtyard) will be sampled as part of the soil sampling effort after the building has been demolished.

Thirty-eight (38) locations will be sampled; field duplicates will be collected at two of the locations to effect a total of forty (40) samples (see Section 4.4). Locations were determined with respect to *affected* and *unaffected* areas. *Affected* areas have potential radioactive contamination (based on historical reviews) or known radioactive contamination (based on results summarized in Table 2.0). Such areas include locations where radioactive materials were used and stored, where records indicate spills, or other unusual occurrences that could have resulted in the spread of contamination. Areas immediately surrounding or adjacent to locations where radioactive materials were used, stored, or spilled are included in this classification due to the potential for inadvertent

spread of contamination. The investigation will focus on the following *affected* areas:

- immediately adjacent to locations of abandoned floor drains;
- locations of source pits; a sample will collected directly adjacent from the pit;
- within sumps/access pits; and
- areas of reported surface spills, including Room 109C;

All areas not classified as *affected* will be labeled *unaffected*. These areas are not expected to contain residual radioactivity, based on knowledge of site history, including room use and previous survey information. The following areas are considered to be *unaffected*:

- Rooms 101, 101A, 102, 102A, 107, 107A, 107B, 113, 113A, 113B, 115, 119, 119A, 119B, 122, 123, 123A, 126, 126A, 126C, 128, 131C, 132, 133, 133A, 133B, 135, 140A, 141, 142, 143, 143A, 144, 146, 147, 149, 150, 151, 155, 155A, 155B, 159, 160, 161, 162, 162A, 162B, 163, and 165; and
- All hallways.

The samples will be composed of concrete, with a diameter of one inch and cored to a depth of two inches. Two cores will be collected at each location to ensure that enough material is collected to properly analyze the samples for constituents defined in Section 4.6. Figure 4.1 indicates sample locations.

One background sample will be collected in Rooms 101A, 131C, and 135. The locations were selected based on the following process knowledge:

- the locations represent portions of the original slab;
- Rooms 101A, 131C, and 135 were used only as office areas since original construction of the building; and
- room-by-room radiological surveys indicated no radiological contamination above detection limits (see Section 2.0).

4.2 Sample Designation

The site standard sample numbering system will be implemented in this project. A simple, unique, alphanumeric location code will be assigned to each sample while in the field. The number will include the current year, building number, room number and sequential sample number (i.e. 97-B123-109C.1). Prior to sample collection, locations will be marked on the building slab with fluorescent spray paint. Sample numbers will be assigned to the project by the Rocky Flats Environmental Database System (RFEDS) Group. In preparation of the final report, a matrix will be developed to correlate the individual sample numbers to location codes.

4.3 Site Preparation

On December 11, 1997, all sample locations were marked with paint. On December 15 and 16,

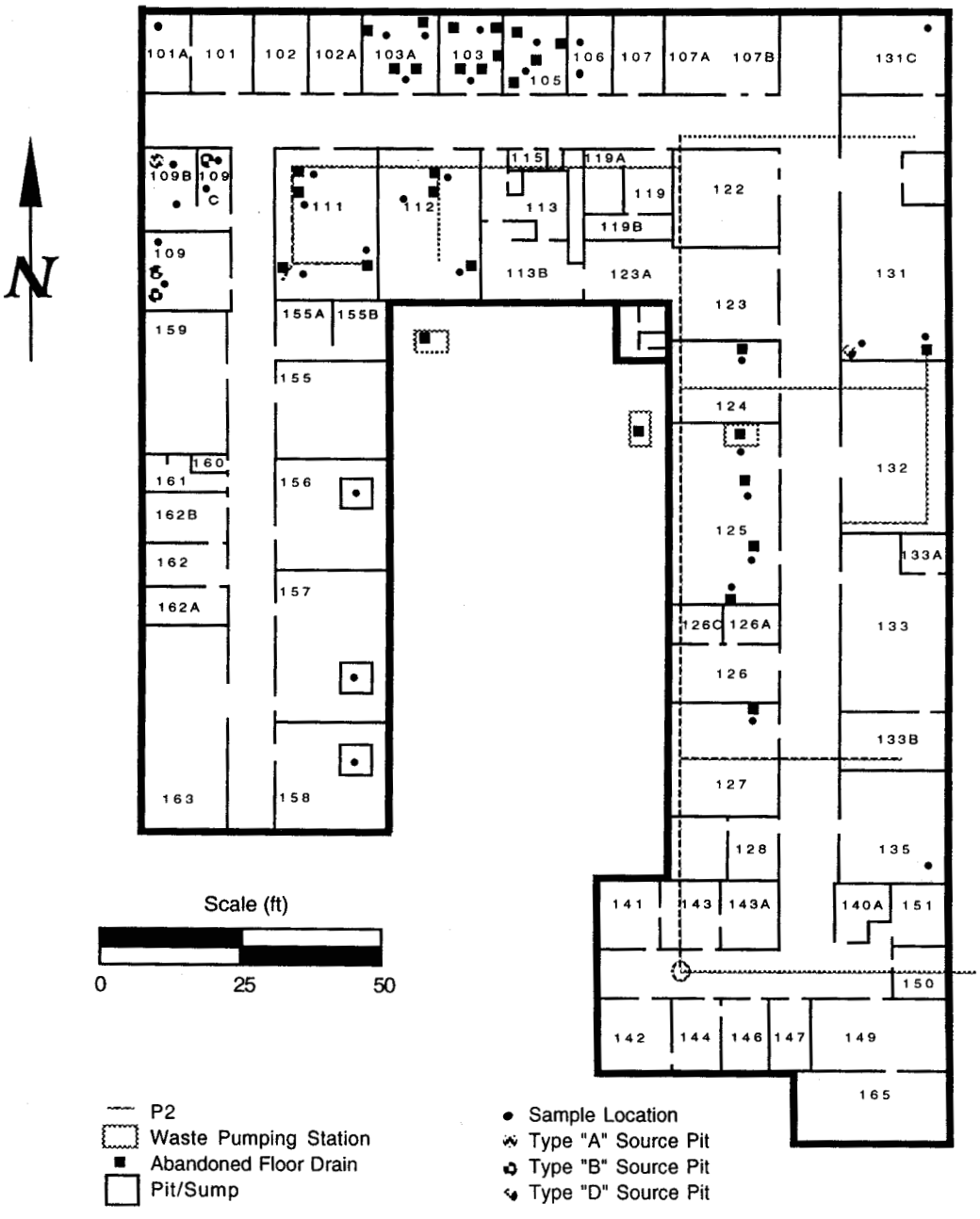

Figure 4.1 Concrete Sampling Locations

1997, a survey was conducted using a Ground-Penetrating Radar (GPR) which can indicate electrical conduit, piping, and rebar. The survey detected a layer of concrete reinforcement at approximately three to four inches below slab surface. The reinforcement is composed of rebar in an eight-inch to one-foot square grid pattern. In some cases the reinforcement was composed of a steel mesh. No evidence of rebar, electrical conduit or piping were detected at depths less than three inches.

An Activity Hazard Analysis (AHA) has been prepared to identify and address job-specific safety concerns specific to concrete sampling activities.

4.4 Sample Collection

Cores will be collected using the Hilty DD-100 Corer, a rotary-type, wet coring system. A portable, manually-pressurized container feeds water to the bit system, which includes a one-inch-diameter, diamond-impregnated core bit. The corer will be mounted on a portable stand which is held to the floor surface by vacuum pressure supplied by a vacuum pump. The slurry produced by coring will be contained by a slurry collection system used in conjunction with a wet/dry shop vacuum. Thus, little or no airborne emissions will be produced during coring activities. The instruction manual provided by the equipment manufacturer will be used to properly operate the drill. At each location, prior to coring activities, a 3-inch hole will be cut into a 3x3-foot sheet of visquine to be placed on the floor over the sample point. The visquine will aid in the cleanup of any waste produced by the core drill that is not collected by the wet/dry vacuum.

A minimum of 125g of material will be placed in a 4-ounce glass jar for gross alpha/gross beta screen; a minimum of 250g of material will be placed in an 8-ounce glass jar for the isotopics analyses. The sample jars will be labeled and handled according to OPS-FO.10 *Receiving, Labeling, and Handling Environmental Containers* .

An RCT will scan personnel, cores, and equipment with a portable Electra scintillation counter. The instrument will be calibrated and maintained in accordance with applicable instrumentation procedures listed in Section 6.0 of the *Rocky Flats Environmental Technology Site Radiological Operating Instructions* (DOE, 1997). Radioactive sources used for the purpose of calibration will be traceable to the National Institute of Standards and Technology (NIST).

Periodic checks of instrument response will be performed to assure that calibration and background have not changed. Following calibration, instrument response will be determined and acceptable range of response established. Instrument response tests will be performed and documented typically prior to beginning the daily measurements to assure continued acceptable operation. If the instrument response does not satisfy the established acceptable range, the instrument will be removed from service until the source of the deviation can be determined and resolved and acceptable response again demonstrated. If repair and/or recalibration is necessary, acceptable response ranges will be reestablished and documented.

Two field duplicates will be collected to represent at least five percent of the sample batch to provide adequate information on sample variability, as defined in *Guidance for Data Quality Objectives Process* (EPA 1994). Locations of duplicates will be determined in the field.

All reusable equipment will be decontaminated in accordance with 5-21000-OPS-FO.03, *General Equipment Decontamination, Section 5.3, Cleaning Procedures for Stainless Steel or Metal Sampling Equipment.* Health and safety requirements are specified in the *Building 123 Decommissioning Project Health and Safety Plan* (HASP, RMRS 1997e). Personal protective equipment (PPE) and air monitoring requirements, and hazard assessments not otherwise defined

in the Building 123 PAM are addressed in the Building 123 HASP. Air monitoring requirements and hazard assessments not otherwise defined in the Building 123 PAM are addressed in the Building 123 HASP.

4.5 Personal Protective Equipment (PPE)

A graded approached will be employed when donning PPE. Level C PPE will initially be worn during coring activities and may be upgraded or downgraded under the direction of the RCT. PPE requirements are also defined in the associated AHA.

4.6 Sample Handling and Analysis

Samples will be handled according to *Environmental Management Department Operating Procedures Volume/ Field Operations*, OPS-FO.13, *Containerization, Preserving, Handling, and Shipping of Soil and Water Samples, Volume 1*, and OPS-FO.10, *Receiving, Labeling, and Handling of Environmental Containers*. Samples will be hand-delivered to the Analytical Projects Office (APO), who will first submit the samples to the onsite laboratory for gross alpha/gross beta screens. The results will be reviewed by Radiological Engineering, who will determine if the samples can leave the site by comparing the results with the corresponding Minimum Detectable Activity (MDA) values. Radiological Engineering will evaluate the sample results for unrestricted release through a Property Release Evaluation (PRE). Upon approval, samples can then be submitted to an offsite, EPA-approved laboratory for analysis under a two-week result turnaround time. Samples will be analyzed for isotopic uranium and plutonium by alpha spectroscopy and for cesium and thorium by gamma spectroscopy.

5.0 DATA MANAGEMENT

A project field logbook will be created and maintained by the project manager or designee in accordance with 2-S47-ER-ADM-05.15 *Use of Field Logbooks and Forms*. The logbook will include time and date of all field activities, sketch maps of sample locations, or any additional information not specifically required by the SAP. The field logbook will also be used to document any unforseen event or necessary changes made to the SAP while in the field. The originator will legibly sign and date each completed original hard copy of data. A peer reviewer will examine each completed original hard copy of data. Any modifications will be indicated in ink, and initialed and dated by the reviewer. Logbooks will be controlled through document control.

Data for this project will be collected, entered, and stored in a secure, controlled, and retrievable environment in accordance with RM-06.04 *Administrative Record Document Identification and Control*. Results will be compiled into a sampling and analysis report. The expected percentage of characterization data validation required for the project is 25 percent. Location and analytical data will be entered into and stored in the Geographical Information System (GIS) files.

6.0 QUALITY ASSURANCE

Analytical data collected in support of this investigation will be evaluated using the guidance established by 2-G32-ER-ADM-08.02 *Evaluation of ERM Data for Usability in Final Reports*. This procedure establishes the guidelines for evaluating analytical data with respect to precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters. For precision, the typical relative percent difference been samples and duplicates is less than or equal to 40% for solid media such as concrete or soil. Duplicates comprise at least 5% of the total sample batch. Accuracy is the responsibility of the laboratory. Comparability will be evaluated by comparing historical data with data collected during this event and will be followed in accordance to EPA regulations and Waste Acceptance Criteria, through which data will be

validated. Completeness (90% of valid data) will be evaluated by comparing the SAP to the actual sampling episode.

7.0 SCHEDULE

Sample collection and analyses will be conducted before building demolition.

8.0 ADDITIONAL ACTIVITIES

8.1 Abandonment of Coreholes

The Building 123 slab is expected to remain in place following completion of demolition activities. All coreholes will be filled with a plug of non-shrinking bentonite slurry.

8.2 Slab Remediation

Remediation options are defined in Section 3.0 and in the *Close-Out Radiological Survey Plan for the Building 123 Cluster* (RMRS 1997b)

8.3 Disposition of Waste

Coring activities will generate approximately twenty gallons of slurry waste which may contain a combination of radioactive, hazardous and mixed wastes. Wastes consisting of asbestos-containing floor tiles, plastic, tools, PPE, and other materials associated with coring activities will also be a source of waste. Contaminated waste will be characterized and handled by a qualified waste generator who will support decontamination specialists and radiation control technicians to identify and segregate hazardous or low level waste. Drums or boxes will be provided by the Waste Disposal group. Waste packaging technicians will package and label the waste and arrange for radioactive waste to be certified. The Project Waste Coordinator will work with the certification personnel and prepare all required documentation. Liquid waste generated during decontamination of sampling and associated equipment will be flushed down an accessible process waste drain or collected in drums and shipped to Building 374 for processing. Solid waste will be managed by the Waste Disposal group and moved to a temporary staging area immediately adjacent to the site to be placed in rolloff containers until proper disposition is determined.

9.0 REFERENCES

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